THE INSTITUTE OF PHYSICS

47, BELGRAVE SQUARE, LONDON, S.W.1

BULLETIN

No. 9 *Information in this circular is not intended for general publication: your copy should not therefore be passed to a library.* SEPTEMBER 1950

DIARY OF INSTITUTE MEETINGS

Members may bring guests to any of the meetings listed below unless otherwise indicated.

Wednesday, 27th September (London and Home Counties Branch). 5.30 p.m., at the Institute's House, 47 Belgrave Square, S.W.1.
Brig. R. A. Bagnold, F.R.S. (Research Director, Shell Group), **"Some Instrumental Problems in the Study of Sand Movement."**

Monday, 2nd October (Stress Analysis Group). 6.0 p.m. A visit to the Photographic Laboratory of the Engineering Division of the N. P. L., Teddington.

Tuesday, 17th October (North Eastern Branch). At the Physics Lecture Theatre No. 1, King's College, Newcastle-upon-Tyne.
Professor W. E. Curtis, F.R.S., F.Inst.P. (President), **"The Training of a Physicist for Industry."**

Tuesday, 17th October (Electronics Group). 5.30 p.m., at the Institute's House, 47 Belgrave Square, S.W.1.
Mr. J. Pollard, A.Inst.P. (Services Electronics Research Laboratories), **"Some Investigations into the Mode of Action of Vapour Pumps."**

Friday, 20th October (Manchester and District Branch). 7.0 p.m., at the New Physics Theatre, Manchester University.
Dr. H. L. Penman, F.Inst.P. (Rothamsted Experimental Station), **"The Role of Vegetation in Meteorology, Soil Mechanics and Hydrology."**

Saturday, 21st October (South Wales Branch). 2.0 p.m. at the University College, Cardiff.
Professor W. E. Curtis, F.R.S., F.Inst.P. (President), **"The Training of a Physicist."**

Tuesday, 24th October (London and Home Counties Branch). 5.30 p.m., at the Institute's House, 47 Belgrave Square, S.W.1.
Dr. H. R. Lang, F.Inst.P. (Secretary and Editor, The Institute of Physics), **"The Preparation and Publishing of a Scientific Paper."**

Wednesday, 25th October (Education Group). 3.0 p.m., at the Fyvie Hall, The Polytechnic, Regent Street, London.
Lord Eustace Percy, "The Technical University." Admission by ticket.

Wednesday–Saturday, 25th–28th October. Conference on **"Some Aspects of Fluid Flow"** to be held at Ashorne Hill, nr. Leamington Spa. Details and application forms for tickets may be obtained from the Secretary, 47 Belgrave Square, London, S.W.1.

Friday, 27th October (Industrial Spectroscopy Group). 10.0 a.m. Autumn meeting to be held at the Institute's House, 47 Belgrave Square, London, S.W.1. The Annual General Meeting of the Group will be at 5.30 p.m.

NOTICES TO MEMBERS

Fourth Physics in Industry Conference

To promote the application of physics to industry by bringing recent developments in applied physics to the attention of industrialists and by providing opportunities for the interchange of ideas among professional physicists, the Institute held a series of "Physics in Industry" conferences in pre-war years. These, on a large scale, were in Manchester (1935), Birmingham (1937) and Leeds (1939) and in each case considerable interest was shown by industry and by the press, both technical and non-technical.

The Board has decided that the first post-war conference of this type shall be held in Glasgow in 1952 with the theme "Physics in the Transport Industries (Land, Sea and Air)." The seat of the Conference will be the Royal Technical College. An executive organising Committee has already been appointed.

Radiation Hazards and Life Insurance Premiums

After prolonged discussion and despite the elaborate precautions to protect those working in nuclear physics laboratories against radiation hazards, an additional premium of ten shillings per cent has been charged on assurance policies on the lives of those engaged in laboratories where the insurance companies consider the intensity of radiation to be high. Offices on the Panel of the F.S.S.U. have, however, agreed that in university laboratories and in similar establishments where the intensity employed is less, no extra premium will be charged for the time being provided that, at the time of the proposal, the insured has no intention or prospect of engaging in atomic energy research such as that carried on at Harwell.

The situation has been brought to the notice of the Board by an Associate from whom the extra premium was demanded although his employment was in an industrial laboratory. After negotiation, the insurance company agreed not to make the additional charge but has imposed restrictions upon the payment of accrued "profits" in the event of death from the effects of radiation.

Since life assurance is based upon a negotiated contract the Board is not in a position to comment upon the interpretation of risk which the insurance companies accept. The Board, however, is firmly of the opinion that when extra premiums are demanded on the grounds of occupational hazards, these should be paid by the

employer on behalf of the individuals concerned; in such cases as are known to the Board this has been done.

"Physics in Industry" Series

In addition to the four volumes of which titles were announced in the June *Bulletin*, the Board has decided to publish two further volumes in this series. These will comprise the papers and discussion at the recent conferences of the Manchester and District Branch and the Midland Branch on "The Physics of Lubrication" and "Vacuum Physics" respectively.

Subscribers' Privileges

The Board has accepted a recommendation of the Finance Committee that Subscribers shall be enabled to obtain the Institute's journals at a reduction on the published price. The retail price of each of the journals is £3 for the annual volume of twelve parts and at present this is the rate charged to Subscribers. From January, 1951, however, Subscribers may enter one subscription to either the *British Journal of Applied Physics* or the *Journal of Scientific Instruments* at a rate of one and a half guineas and may obtain the second journal for an additional two guineas.

X-ray Analysis Group

The Equipment Sub-Committee of the X-ray Analysis Group makes the following announcements regarding the work of its Panels:

(1) A new Graphical Methods Panel has been formed to deal with the supply of the different types of charts and nets used in X-ray Analysis. The Secretary is Mr. A. E. De Barr (Fellow), Research Laboratories, Elliott Brothers (London) Ltd., Elstree Way, Borehamwood, Herts.

(2) The Single Crystal Panel has been reconstituted and observations on the work of this Panel should now be addressed to its Secretary, Dr. W. Cochran (Associate), Crystallographic Laboratory, Cambridge.

(3) The Powder Camera Panel has been reconstituted and renamed the Powder Camera and Geiger Counter Spectrometer Panel. Additional members have been enrolled to provide a broad basis for consideration of Geiger counter work in X-ray crystallography. Suggestions are welcomed and should be sent to the Panel Secretary, Mr. H. S. Peiser (Associate), Hadfields Ltd., East Hecla Works, Sheffield, 9.

Presentation of Manuscripts for Publication

The attention of members of all grades is drawn to the following circular letter from the Secretaries of the Royal Society, with which the Board of the Institute has expressed its complete sympathy.

"At the Royal Society Scientific Information Conference held in 1948 it was recommended that in order to eliminate defects and reduce delays in publication, action should be taken to improve the preparation and presentation of manuscripts submitted for publication in scientific journals.

"This recommendation has been implemented by the Royal Society's Information Services Committee which has had prepared by a Sub-Committee under the Chairmanship of Professor G. L. Brown, C.B.E., F.R.S., a pamphlet entitled 'General Notes on the Preparation of Scientific Papers.' This pamphlet is of a general character and is intended to be of assistance to authors of scientific papers, and particularly to those who may be preparing a paper for the first time. It is not the Royal Society's desire that it should replace the specific directions to authors issued by many scientific societies and which an author should always follow, but rather that the pamphlet should be a general guide, and should supplement such other directions as are already issued.

"The Council of the Royal Society attaches considerable importance to improving the standard of scientific literature and therefore, in giving its approval to this pamphlet, invites your co-operation in bringing it to the attention of your members.

"The Council is also deeply concerned about both the quality and the quantity of scientific papers at present prepared and hopes that, in bringing this pamphlet to the notice of authors, you will also take steps to ensure that only papers presenting a considerable body of new discovery or valuable reviews are submitted for publication, and further, the Council invites those responsible for appointments, awards and promotions to encourage this outlook by attaching greater importance to a few papers of high scientific value rather than to a greater number of papers of less merit.

"It is hoped that you will be able to assist the Council of the Royal Society in this effort to improve scientific literature by attempting to reduce the number of papers submitted for publication and at the same time having them written clearly and concisely.

"Copies of the pamphlet may be obtained through any bookseller at a cost of two shillings and sixpence or direct from the Cambridge University Press, Bentley House, 200 Euston Road, London, N.W.1, at a cost of two shillings and ninepence post free."

Members are also reminded that copies of the Institute's own "Notes on the Preparation of Papers" are available on request from the Secretary. They are free to members and two shillings to non-members.

X-Ray Diffraction Data Cards

A revised edition of the A.S.T.M. card index of X-ray diffraction data has been prepared and is now available from the Institute; the work of revision has been undertaken on behalf of a joint committee of the American Society for Testing Materials, the American Society for X-Ray and Electron Diffraction and the (British) Institute of Physics. The Institute is sole agent for the sale of the index in the British Isles and the money received is used wholly for the support of scientific work to extend the data.

The original index and first supplement listed

diffraction data relating to 2 800 compounds; an additional 1 400 substances are included in the new work. A limited number of sets will probably be available on "Keysort" punched cards which will greatly facilitate the necessary searching of the data. Only a few further orders for the index can be accepted as almost the whole delivery has been taken up by organizations which purchased the original sets. The total cost of the revised original index, revised first supplementary index and new second supplementary index is £90 (on plain cards). Enquiries should be addressed to the Deputy Secretary of the Institute.

PROCEEDINGS OF THE THIRTIETH ANNUAL GENERAL MEETING

The Thirtieth Annual General Meeting of the Institute was held on July 20, 1950 at the Institute's House. The President (Dr. F. C. Toy) was in the Chair. A quorum being present, the Secretary read the notice convening the meeting. The Minutes of the previous Annual General Meeting held on May 20, 1949 and of the Extraordinary General Meeting held on September 15, 1949 were read and signed by the Chairman.

In the unavoidable absence of the Honorary Treasurer, the Honorary Secretary (Dr. B. P. Dudding) moved the adoption of the accounts and balance sheet for the year 1949. This was seconded by Professor F. Llewellyn Jones (Fellow) and the proposal for adoption carried unanimously. The President then moved the adoption of the report of the Board for the year 1949. This was seconded by Mr. F. W. Cuckow (Fellow) and the report was unanimously adopted.

The President having received the report of the scrutineers [Mr. A. W. Pybus (Associate) and Mr. H. G. Jenkins (Fellow)] declared the following elected (or re-elected) to fill the vacancies which will occur on September 30th.

President: Professor W. E. Curtis.
Vice-President: Professor E. G. Cox.
Honorary Treasurer: Mr. E. R. Davies.
Honorary Secretary: Dr. B. P. Dudding.
Ordinary Membership of the Board: Dr. F. P. Bowden, Mr. G. R. Noakes.

Messrs. Knox, Cropper & Co. were re-elected auditors for the year 1951.

A hearty vote of thanks to the President and to the Honorary Officers was proposed by Mr. A. G. Peacock (Associate) and seconded by Mr. H. G. Jenkins (Fellow) and carried with applause. The President moved votes of thanks to the Honorary Officers of the Branches and Groups at home and overseas, to the many bodies who have allowed the use of their rooms for meetings, and to the Institute's permanent staff. These were carried with applause.

The meeting then proceeded to the Special Business of which due notice had been given.

The following resolution was proposed by Dr. B. P. Dudding, seconded by Dr. T. L. Ibbs (Fellow) and carried unanimously, that By-law 17 be and is hereby deleted.

This concluded the business of the meeting.

PROCEEDINGS OF THE BOARD

The Board met on May 18th and July 20th, the President in the Chair on each occasion. At the opening of the earlier meeting the President asked members to stand in silence as a mark of respect for Professor J. A. Crowther (Vice-President), who had recently died.

In addition to formal business and matters referred to elsewhere in this Bulletin, the following items were dealt with:—

Annual Conference of Branch and Group Officers.—The Honorary Secretary presented the report of the 1950 Annual Conference of Branch and Group Officers. A number of items were referred for consideration by the Officers and subsequent reconsideration by the Board.

President's American Visit.—The President gave an outline of his recent visit to America which, although undertaken for business reasons, enabled him to make a number of contacts of interest to members of the Board. He had found that the reputation of the Institute among American physicists was high and its activities and publications were widely known.

Professional Fees.—The Board had a request from a Government Department to assist in finding physicists to undertake part-time testing work. It was agreed to inform the Ministry concerned that the fees and expenses offered were considerably below those normally received by qualified physicists and that therefore the Board did not propose to bring the appointments to the notice of Members.

Finance.—An interim report on the Institute's financial position was presented by the Honorary Treasurer. In the opinion of the Finance Committee, after consideration of revised estimates of income and expenditure for the year, the final surplus on the year's working was likely to be only slightly less than that estimated in November 1949. The circulation of the new Journal was growing satisfactorily. It was reported that the Royal Society had allocated £500 to the Institute from the Parliamentary Grant-in-aid for Scientific Publications.

Education.—It was reported that a sub-committee of the Parliamentary and Scientific Committee, on which Dr. J. Topping (Fellow) and Mr. N. Clarke (Deputy Secretary) represented the Institute, had now completed its report on "Technical Education and Skilled Manpower." It was agreed that the Institute's representatives on the main committee should support the acceptance of the report when presented.

APPOINTMENTS VACANT

The inclusion of particulars of a vacancy must not be taken to imply that the Institute necessarily approves of the terms offered or that might be offered. Candidates should satisfy themselves that these are satisfactory, and they may always refer to the Institute for advice. A suggested form of contract under which a qualified physicist might reasonably be expected to serve is available on request.

Ministry of Supply invites applications from **Physicists** for unestablished appointments in **Scientific Officer Class** at Research and Development Establishments near London.

Candidates should have a 1st or 2nd class honours degree in physics and good general electronic knowledge and experience. For one post familiarity with V.H.F. circuit techniques and modern valve design would be an advantage. Candidates for Senior posts must be at least 26 years of age and have had a minimum of three years' post graduate research experience.

Salary according to age, qualifications and experience within ranges:—

Senior Scientific Officer £670–£860.
Scientific Officer £380–£620.

Posts carry F.S.S.U. benefits. Rates for women somewhat lower.

Application forms obtainable from Ministry of Labour and National Service, Technical and Scientific Register (K), York House, Kingsway, W.C.2. quoting A.234/50. Closing date 30th September, 1950.

National Coal Board.—Applications are invited for the undermentioned posts in the Board's Central Research Establishment at Stoke Orchard, nr. Cheltenham.

(i) An experienced **Research Physicist** to act as deputy head of the Physics Laboratories and to work on the physical properties of coal. (Reference TT/238).
Appointment to the above post will be as Scientist Grade 1, on a scale £1,000 × £30 to £1,300 per annum, the starting salary depending on qualifications and experience.

(ii) Experience **Research Physicists.** Selected candidates will be required to take charge of small groups of research workers in the Physics Laboratories. (Reference TT/240).
Appointment to these posts will be as Scientist Grade II on a scale £700 × £25 to £950 per annum, the starting salary depending on qualifications and experience.

Successful applicants will be required to join either the Board's Superannuation Scheme for Scientists, which is drawn on lines broadly comparable with those of the F.S.S.U., or their Principal Superannuation Scheme. Apply in writing, giving full particulars (in chronological order) of age, education, qualifications and experience (with dates) to National Coal Board, Establishments (personnel), Hobart House, Grosvenor Place, London, S.W.1, marking envelope with relevant TT. reference number quoted above. Original testimonials should *not* be forwarded. Closing date 25th September, 1950.

The Medical Research Council invite applications for the post of Head of the Instrument Division at the National Institute for Medical Research, N.W.7. The post entails responsibility for the work of the instrument workshop and the electronics laboratory of the Institute, and advising the scientific staff of the Council on the application of physical techniques to their problems. Candidates should be physicists by fundamental training, with varied experience of research work and a strong interest in the design and construction of scientific apparatus. Salary will be fixed according to qualifications and experience. Applications in writing, giving name, age, address and full details of scientific career (including a list of any scientific publications and the names and addresses of three referees), should reach the Director, National Institute for Medical Research, The Ridgeway, Mill Hill, N.W.7, before the 22nd September, 1950.

Imperial Chemical Industries Limited, Nobel Division, invites applications from **Physicists** for a number of vacancies in its Research Department at Stevenston, Ayrshire. The work may consist in experimental and theoretical studies of explosive reactions involving the use of high-speed photographic and electronic techniques, or in the development and application of physical instruments and methods to Research and Industrial problems. Applicants should possess a good Honours Degree in physics, should have some research experience, and should not exceed 28 years of age. The initial salary will depend upon age and experience. Applications should be made to the Staff Manager, Nobel House, 25, Bothwell Street, Glasgow, C.2.

Lever Brothers and Unilever Limited invite applications from physicists of considerable university and/or industrial research for the post of **Senior Physicist** in their Research Department at Port Sunlight, Cheshire. The holder of the post will be responsible for the direction of the research of a group of physicists working on a variety of problems of general physics. Salary £2,000 per annum. Comprehensive superannuation scheme. Application should be addressed to Lever Brothers and Unilever Ltd., Personnel Division (FMD-4), Unilever House, Blackfriars, London, E.C.4.

Physicist (junior) required for development work on scientific instruments. Honours degree essential, industrial experience an advantage. Starting salary £350–£450. Write only Nash & Thompson, Ltd., Oakcroft Road, Tolworth, Surrey.

British Electricity Authority, Scientific Staff, Research Laboratories, Leatherhead. Applications are invited for appointments on the Scientific Staff of the Chief Engineer Department in the Research Laboratories at Leatherhead. Candidates should possess a University degree with first or second class honours in electrical or mechanical engineering or in physics. Preference will be given to candidates with some research experience.

Duties will include testing, development and research work in the laboratories and in the field in connexion with the generation, transmission and distribution of electricity. The appointments which are superannuable will be made within the following salary ranges according to qualifications and experience:—

General Assistant. N.J.B. Grade 5. £465–£594, rising ultimately to a maximum of £656 per annum.
Third Assistant. N.J.B. Grade 4. £644–£769, rising ultimately to a maximum of £849 per annum.
Second Assistant. N.J.B. Grade 3. £719–£969, rising ultimately to a maximum of £1,070 per annum.

The successful candidate may be required to pass a medical examination. Application forms may be obtained from the Secretary's Office (Establishment), Application Section, British Electricity Authority, British Electricity House, Great Portland Street, W.1.

The latest date for the receipt of applications is 18th September, 1950.

"Of all human virtues perhaps truth is the rarest and most difficult: blindness of mind, prepossessions and the pro an forms of egoism continually assail it. Necessarily it is the genius loci *of an institution devoted to advancing knowledge."*

SIR RICHARD LIVINGSTONE.

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